United States Environmental Protection Agency
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EPA

Superfund At Work

Hazardous Waste Cleanup Efforts Nationwide

Henderson Road Site Profile

Site Description: Closed landfill

Site Size: 7.6 acres

Primary Contaminants: Volatile organic compounds (VOCs) and heavy metals

Potential Range of Health Effects Prior to Site Cleanup: Central nervous system disorders and increased risk of cancer

Nearby Population: 5,000 people within 1 mile

Ecological Concerns: Frog Run, a local stream

Year Listed on NPL: 1984

EPA Region: 3

State: Pennsylvania

Congressional District: 13

Success in Brief

Innovative Technologies Enhance Ground Water Restoration

When an interstate highway and two railroads box in a hazardous waste site, access can be a major challenge. Removing debris from those properties without disrupting the flow of transportation takes careful planning and creative solutions. With help from local transit authorities, the U.S. Environmental Protection Agency (EPA) balanced a hazardous waste cleanup with regional demands for safe auto and rail traffic.

More than a decade of improper landfill management characterized the Henderson Road site in Montgomery County, Pennsylvania. Underground injection of industrial wastes had contaminated area ground water and threatened the local reservoir. Using Superfund authority, EPA applied a combination of innovative technologies to treat ground water and construct a permanent landfill cover.

Effective enforcement resulted in timely settlements for site investigations and cleanup. Settling parties completed construction activities in 1992 and have submitted long-term operation and maintenance plans. Environmental protection specialists from the Pennsylvania Department of Environmental Protection (PADEP) will assist in supervising these efforts.

The ground water treatment plant under construction in July, 1991.

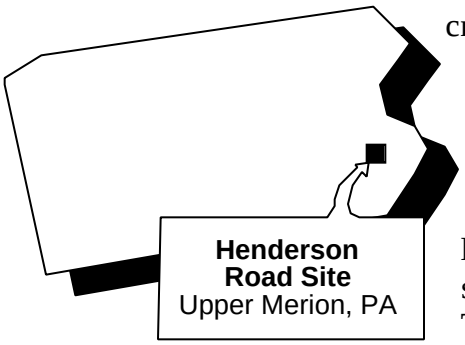
The Site Today

A protective cap over the landfill seals contaminants and prevents precipitation from percolating through the wastes. A ground water treatment plant remains operational and will require monitoring for 30 years.

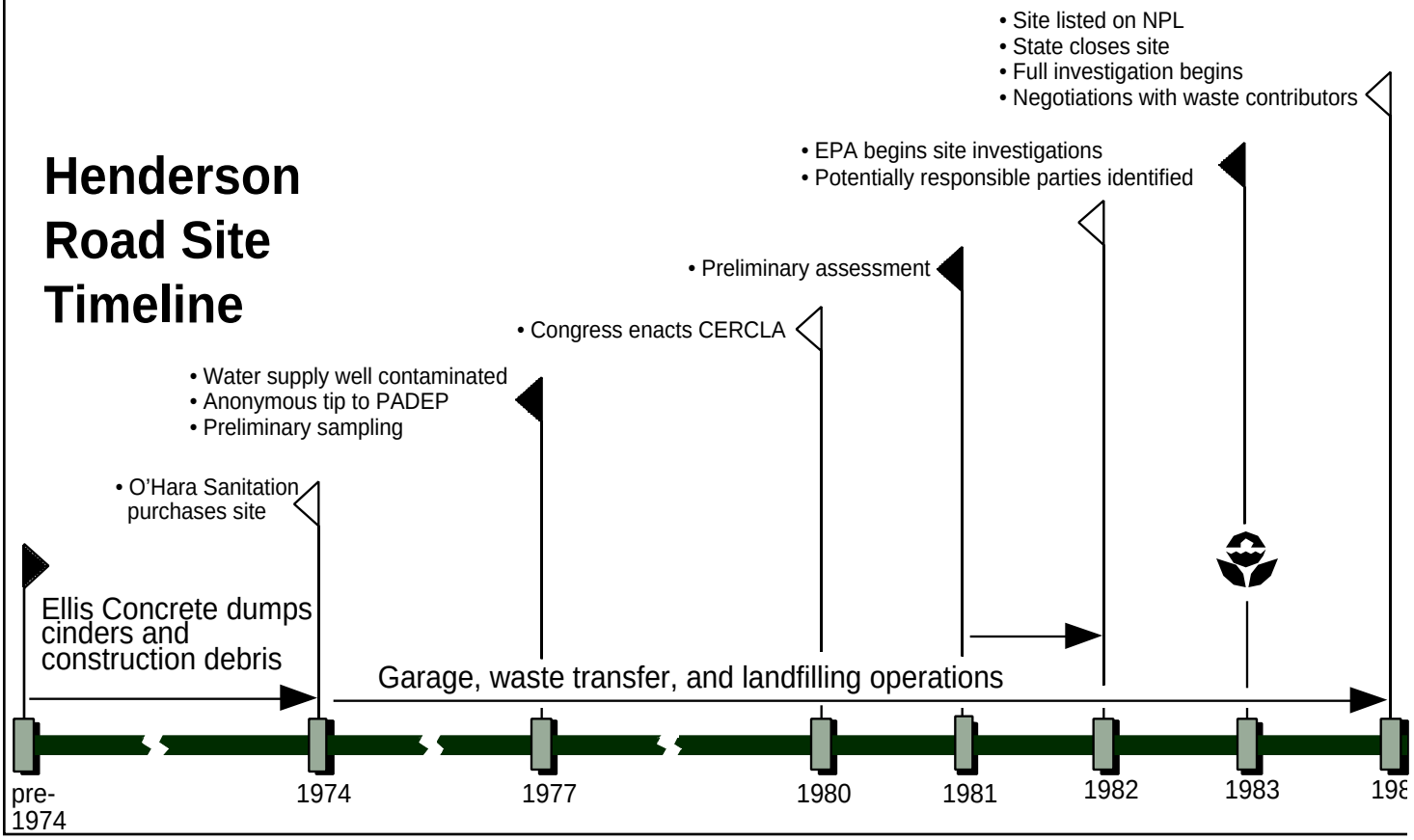
A Site Snapshot

The 7.6-acre Henderson Road site is in Upper Merion Township along a section of the Pennsylvania Turnpike. The Southeastern Pennsylvania Transit Authority (SEPTA) and Conrail train tracks border two other sides of the property. In the early 1970s, Ellis Concrete Company dumped cinders and construction debris haphazardly throughout the property. O'Hara Sanitation Company, Inc. bought the site in 1974 and began operating a garage and waste transfer facility. In addition to highly toxic commercial wastes and demolition debris accepted during a 10-year period, some illicit dumping occurred. Approximately 21,000 cubic yards of trash and cinders were dumped on the surrounding railroad and highway properties.

In the late 1970s, O'Hara Sanitation allegedly allowed the disposal of industrial wastes into an on-site water supply well. That underground injection contaminated the ground water with volatile organic compounds (VOCs) including benzene, toluene, vinyl chloride, and trichloroethylene, numerous other organic compounds, and some heavy metals. Polycyclic aromatic hydrocarbons (PAHs) and VOCs saturated the soil in varying concentrations. These chemicals can cause central nervous system disorders and increase the risk of cancer. Approximately 5,000 people live within a one-mile radius and a school is located 3,000 feet south of the site. The Upper Merion Reservoir, just 2,000 feet from the site, contributes to a drinking water system that services 800,000 people.



Henderson Road Site Timeline



Underground Injection Threatened Drinking Water Supply

In 1977, an anonymous phone caller alerted PADEP that ABM Disposal Service was transporting and dumping industrial waste into a well on the Henderson Road property. PADEP and EPA took preliminary samples and found pollutants in the well and surrounding soil. The improper landfilling operations at the site were exacerbated by this illegal underground injection, but no one could be sure of the extent of ground water contamination.

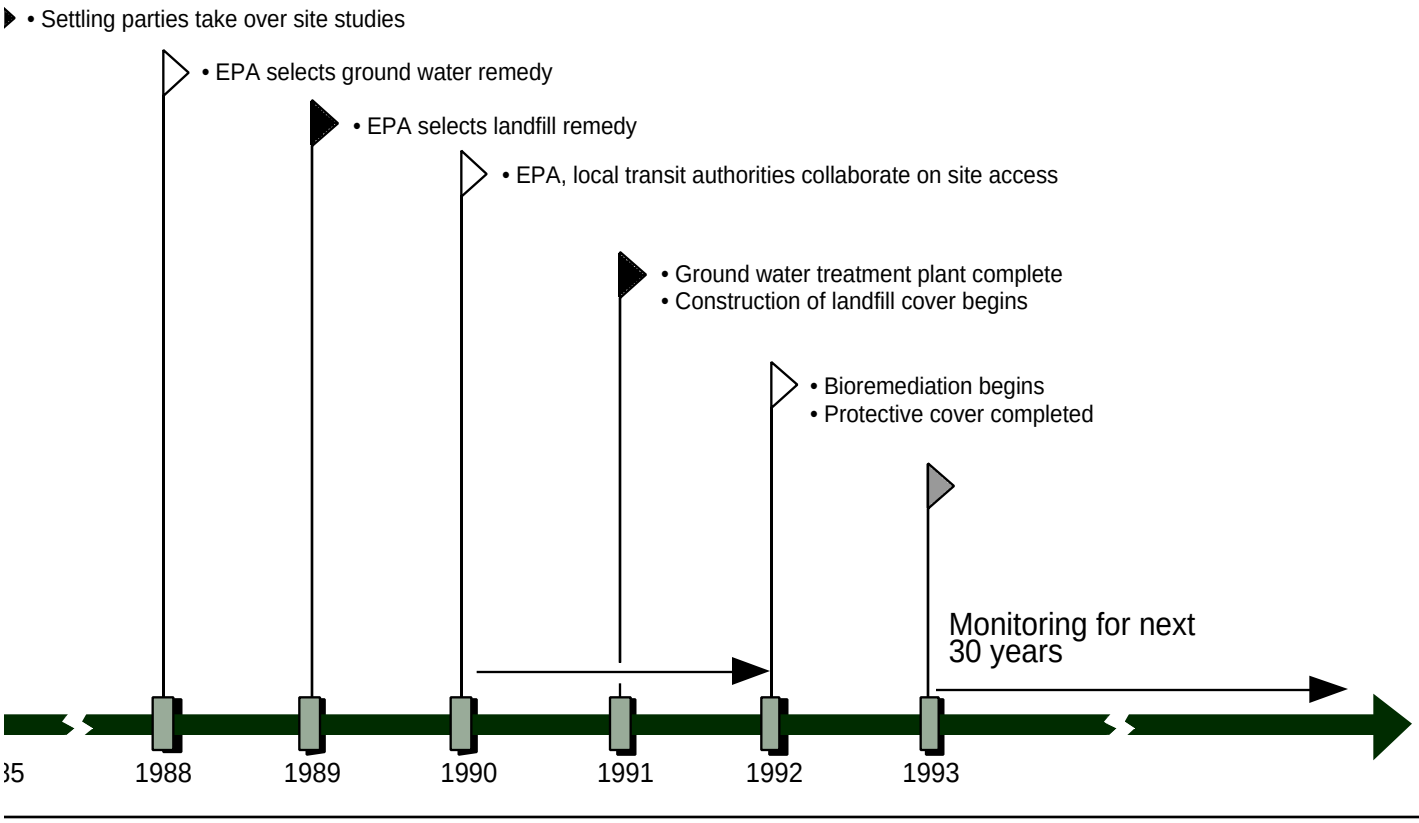
Site Added to NPL

Three years later, Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act of 1980. The law established the Superfund program to address abandoned and uncontrolled hazardous waste sites throughout the nation. While the landfill was still open, PADEP and EPA conducted a preliminary assessment and in 1984, added the site to the National Priorities List (NPL), EPA's roster of sites requiring comprehensive cleanup.

Waste Contributors Participate in Cleanup

EPA identified nine companies who consented to complete a thorough investigation of the site's contamination in November, 1985. This group proposed cleanup alternatives based on study results in 1988. Following a period of public comment, EPA selected a ground water strategy that included the use of bioremediation. This method involves the use of microorganisms that break down and neutralize contaminants into harmless byproducts.

In September 1989, EPA selected a remedy to address contamination from the landfill. A new type of solid waste cap would be used which included a 1/4 inch-thick bentonite geocomposite layer. Bentonite is a natural substance that is nonporous and doesn't crack in



cold weather. The bentonite geocomposite is thinner and lighter than standard clay layers, yet reduces the permeability of the protective cover. The plan also required treatment of contaminated soil and installation of additional controls to prevent contaminant migration.

Following negotiations in August 1990, the settling parties agreed to perform the cleanup operations, including vapor extraction for the injection well. Construction of a ground water treatment plant began in February 1991 under EPA supervision and was completed that September. Bioremediation treatment began in March, 1992. That summer, crews completed the landfill cover and installed a leachate collection and treatment system.

Because of the proximity of the Pennsylvania Turnpike and railroad properties, EPA consulted with local transit authorities during construction activities to prevent transportation disruptions. In addition, crews constructed a concrete and PVC liner around a public waterline that ran through the site to safeguard against ruptures during cleanup operations.

Success at Henderson Road

Construction of a state-of-the art protective cap over the landfill is complete, including leachate collection and treatment systems. The ground water remedy is relying on an innovative technology, bioremediation, to break down contaminants; monitoring will continue for 30 years. Cooperation by the Pennsylvania Department of Transportation, Conrail and SEPTA railroad operators, PADEP, and the local water utility enhanced EPA's ability to effectively address the site.

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